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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,524	11/15/2000	Ayad Beghdad		3620

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FAIRFIELD, CT 06824

EXAMINER	
MEI, XU	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/713,524	BEGHDAD, AYAD	
	Examiner	Art Unit	
	Xu Mei	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-12,14,16-26,28-36 and 38-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12,14,16-26,28-36 and 38-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to the applicant's amendment dated 08/30/2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 14, 24 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Eatwell et al. (hereafter, "Eatwell") (US Patent 5,768,473).

Regarding Claims 14, 24, and 36, Eatwell discloses a noise suppressor, communications terminal or communications network including a noise suppressor for provide a noise suppressed signal containing noise thereof, comprising: a noise estimator (noise estimator 3) to make an estimate of the noise; a reduced noisy speech estimator to make an estimate of speech together with a fraction of the incoming noise (signal estimator 4); and a noise reducing filter generator to use the estimate of speech together with the fraction of the incoming noise to generate a noise reducing filter (filter 5 and 8).

Method claim 1 is rejected for the same reasoning as set forth for the rejection of apparatus claim 14 as recited above since the apparatus claims perform the same functions as the method claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3-12, 16-23, 25, 26, 28-35, and 38-45 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Eatwell in views of Pastor et al. (US Patent 6,445,801, hereafter, Pastor).

Regarding Claims 3, 16, 28, and 38, Eatwell does not disclose a variable estimate. Pastor further discloses the level of the noise included in the estimate of the speech together with some noise is variable so as to include a desired amount of noise in the noise suppressed signal (Col. 7, lines 38-45 disclose variable coefficient alpha). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a variable estimate to include a desired amount of noise suppression.

Regarding Claim 4, 17, 29, and 39, Pastor further discloses noise suppression in signals containing speech (i.e. context information) (Col. 1, lines 10-13).

Regarding Claims, 5, 18, 30, and 40, Eatwell does not disclose a noise below a mask limit. Pastor further discloses the level of the noise is below the mask limit of the speech and so is not audible to a listener (Col. 2, lines 49-56). Therefore it would have been obvious to have a noise level below a mask limit in order to separate noise from a useful sound signal to be heard by a user.

Regarding Claims 6, 19, 31, and 41, Eatwell does not disclose the level of noise context information is left in the signal as the estimate of speech together with the fraction of noise approaches a limit. Pastor further discloses the level of noise in the estimate of the speech together with some noise approaches the mask limit of the speech and so some noise context information is left in the signal in order to avoid the risk of harming the intelligibility of the noise suppressed signal (Col. 12, lines 57-67). Therefore it would have been obvious to one or ordinary skill in the art at the time the invention was made to include noise in the signal in order to avoid the risk of harming the intelligibility of the noise suppressed signal as taught by Pastor.

Regarding Claims 10, 20, 32, and 42, Eatwell does not disclose a noise level estimated lower than the noise level in the signal containing noise. Pastor further discloses the estimate of speech together with some noise is estimated to have a noise level lower than the noise level in the signal containing noise in order to efficiently represent the noise signal (Col. 9, line 40 through Col. 10, line 14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an estimate of speech together with some noise is estimated to have a noise

level lower than the noise level in the signal containing noise in order to efficiently represent the noise signal.

Regarding Claims 12, 22, 34, and 44, Eatwell does not disclose the use of a Wiener filter. Pastor further discloses noise reducing filters generalized and being a commonly used Wiener filter (Col. 6, lines 17-28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a commonly known filter such as a Wiener filter in order to filter out signal components (Col. 5, lines 7-12).

Regarding Claims 11, 21, 33, and 43, Eatwell does not disclose a reducing factor being applied. Pastor further discloses a reducing factor is applied to reduce the noise level of the estimate of speech together with some noise (Fig. 1, reference 4) relative to the noise level in the signal containing noise (references 2 and 3). Therefore, it would have been obvious to one or ordinary skill in the art at the time the invention was made for a reducing factor in order to compensate for energy and overestimation of the noise.

Regarding Claim 8, Pastor further discloses the estimated noise is power spectral density (see abstract).

Regarding Claim 9, Pastor further discloses the first estimation (Fig. 2, reference 2) is used to update the estimated noise (reference 4).

Regarding Claim 7, 13, 23, 35, and 45, Eatwell does not disclose adaptively producing a gain coefficient. Pastor further discloses a gain coefficient is produced in which a first estimation of the gain coefficient is made adaptively (Col. 2, lines 42-46) and this first estimation is used to produce a noise estimation which is then used to produce a second estimation of the gain function (Fig. 1, reference 4). Therefore, it

would have been obvious to one or ordinary skill in the art at the time the invention was made use adaptive filtering in order to produce a more effective filter coefficient.

Response to Arguments

Applicant's arguments filed 08/30/2006 have been fully considered but they are not persuasive. Applicant argues, in section III, Remark, that Eatwell does not disclose ”estimating the noise”; "estimating speech" together with a “fraction of incoming noise”; and a “noise reducing filter is generated using the estimated of speech together with the fraction of the incoming noise. This is not persuasive because, as stated in the rejection above and considered with Eatwell, the noise estimator 3 is used to “estimating the noise" as claimed (see col, 4, lines 29-31); the signal estimator 4 is used to “estimating speech" together with a “fraction of incoming noise” as claimed (see col. 5, lines 38-56); and a noise reducing filter (filter 5 and 8) is generated using "signal" outputted (Fig. 2, “signal” being inputted to Wiener filter calculation) from signal estimator 4 which is the estimated of speech together with the fraction of the incoming noise, as claimed. Therefore, all the limitations as in claims 1, 14, 24 and 26 are met by Eatwell, and applicant’s argument are deemed not persuasive.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xu Mei whose telephone number is 571-272-7523. The examiner can normally be reached on maxi flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Xu Mei/
Primary Examiner, Art Unit 2615
05/22/2008